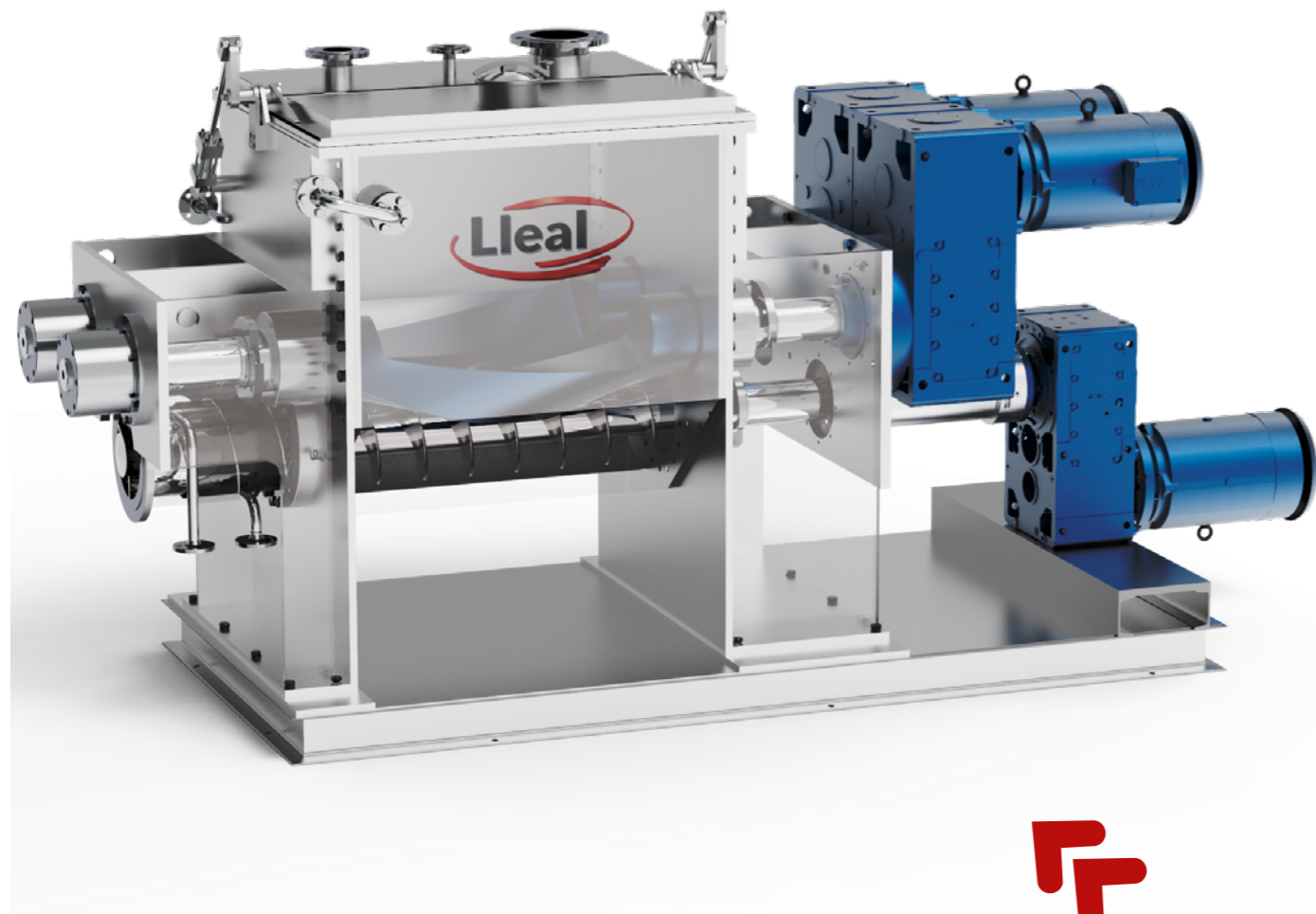


AME DOBLE SIGMA EXTRUDER KNEADER



with you, step by step



AME DOBLE SIGMA EXTRUDER EXTRUDER KNEADER



The AME extruder kneader has been developed for the preparation of medium and high viscosity pastes presenting emptying, handling, conditioning and/or transformation problems. These equipments are robust and safe, adapted to each manufacturing process, offering a highly cost-effective solution.

It has a wide range of applications: manufacturing putties, hot-melts, ceramic pastes, explosives, as well as for meat casings, caramel, meat concentrates, etc.

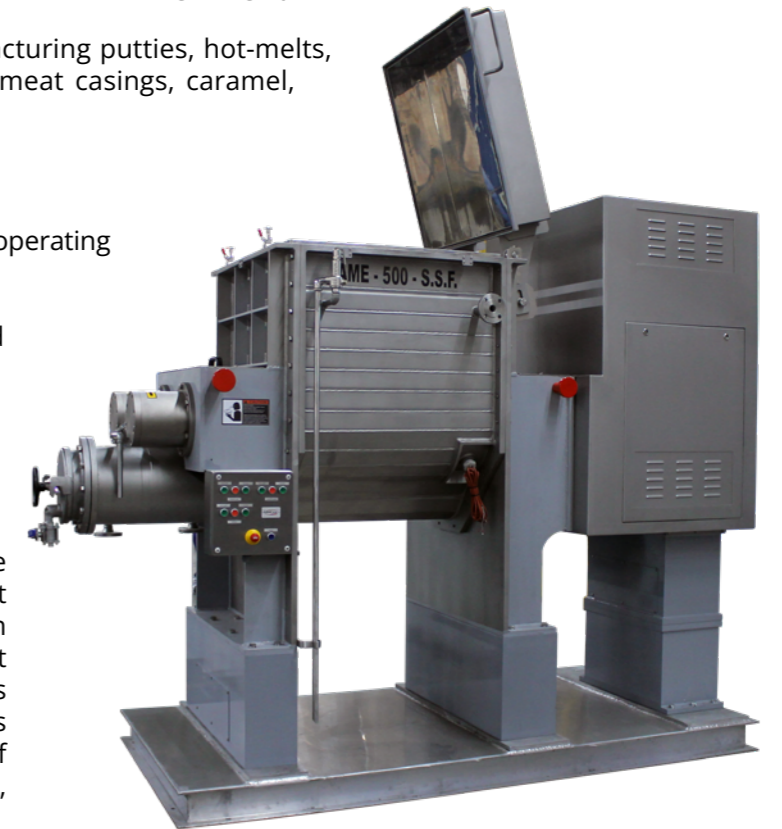
OPERATION

It is a batch processing equipment, with an operating cycle that comprises:

- » One or more products can be loaded through the spouts located on the lid.
- » Kneading.
- » Emptying by extrusion.

The mixing process is carried out by the action of two double-sigma blades (the most common), located at the bottom, which rotate at different speeds and in a convergent direction, following a figure-eight circuit. This kneader combines the action of the blades with a parallel worm screw at the bottom of the trough that creates a third movement, increasing the the mixing efficiency

At the end of the mixing operation, and without stopping the blades, the emptying or extrusion process is carried out by simply changing the direction of rotation of the worm screw.



Technical features

The transition from the mixing phase to the extrusion phase is carried out directly, without interruptions or manual intervention by the operator. This equipment allows the installation of special nozzles to adapt the shape of the extruded material to the needs of each customer. Even, upon request, it is also possible to mount a guillotine cutter at the extrusion outlet.

Pneumatic cutting guillotine at extruder outlet



View of disassembling an extruder screw for cleaning



This equipment may be supplied with automation systems for loading, mixing, extrusion and conditioning cycles.

TROUGH

The inside of the trough is completely smooth, which facilitates the cleaning of the equipment. Optionally, it can incorporate a double chamber, a half-pipe coil, or a dimple jacket for heating with steam or thermal fluids, as well as for cooling. For processes in which maintaining the internal temperature is crucial or where the heat transfer to the outside is very high, insulating are installed, and it could be of different materials: rock wool, polyurethane foam, etc.



We have equipment prepared to work under atmospheric pressure or under vacuum, incorporating special sealing gaskets in the equipment's lid.

Depending on the product to be processed, the troughs are built in carbon steel, AISI-304 or AISI-316 stainless steel or, upon request, in duplex steels or with specific coating materials for chemical corrosion and abrasion.

BLADES

Due to their unique design and large diameter, the kneading blades are highly effective in mixing processes with high viscosity pastes. There are three modes of construction:

- » Cast carbon steel blades with ground edges.
- » Carbon steel blades with a polished stainless steel cover.
- » Solid cast stainless steel blades.

They are machined laterally, according to the trough. The shafts are hot-inserted into the blades, with successive welding beads providing high torsional strength. These are machined and incorporate protective bushings in hard chrome or ground stellite, which prevent wear in the area in contact with the stuffing box.



Double sigma blades

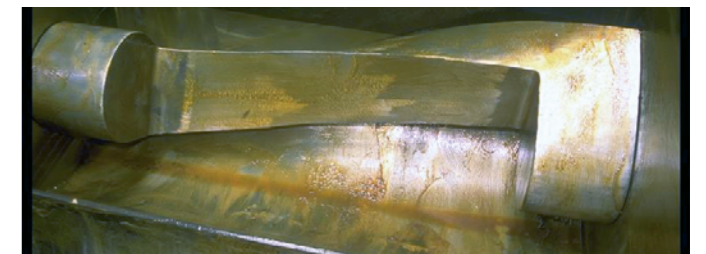
For some products, it is essential to maintain a stable temperature. In these cases, the mixing blades can incorporate an internal circuit for heating or cooling by means of the same fluid used in the double chamber of the trough.



Double nabes blades

According to the production process, Lleal offers four blade designs:

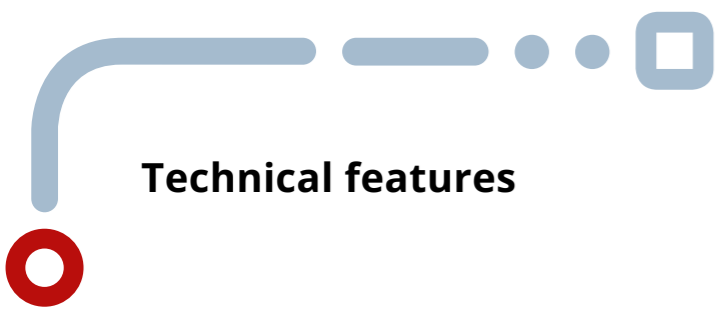
- » Double sigma blades (the most common) are indicated for materials requiring a large movement inside the trough. They are the most versatile and are used in both the general chemical industry and the food sector.
- » Double nabes blades, suitable for kneading highly viscous products such as gums or cellulose.
- » Double Z blades at 135° or 180° inclination are especially indicated for materials requiring less shearing force.
- » DF-type blades, suitable for abrasive or difficult-to-mix materials such as gums, plastics, resins, or polyurethanes.



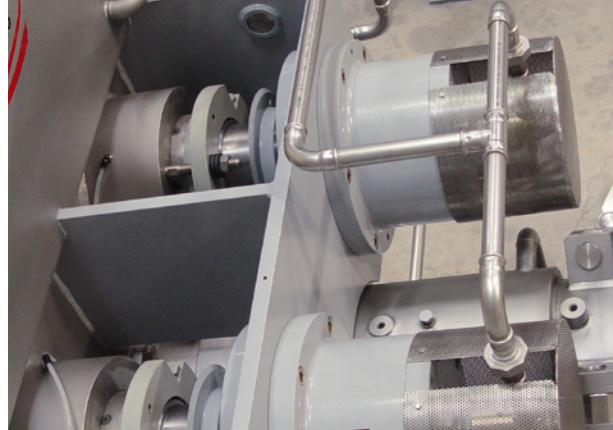
Z to 135° blades



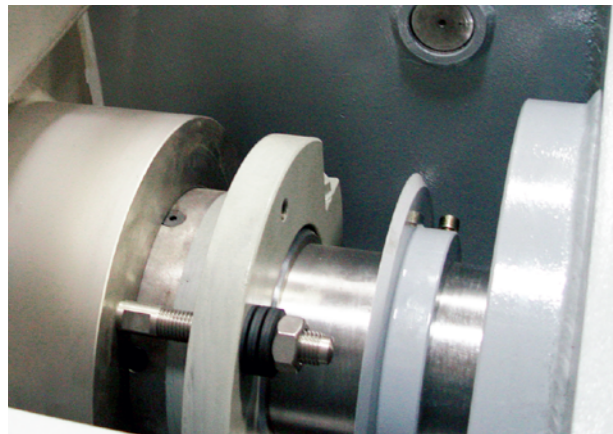
DF-type blades



Technical features



Detail of access to the stuffing boxes and the heating and/or cooling system of the blades.



Detail of some internal pressurized stuffing boxes with inert gas to prevent product entry.

STUFFING BOX

The blade shafts are equipped with two stuffing boxes sealing the inside of the trough. They are of split design, which facilitates access for easy maintenance of the glands, and their long design ensures perfect sealing. The glands are square profile with PTFE or PTFE/graphite braiding.

We have specific solutions with special seals for working under vacuum, sanitary designs for easy cleaning, heated versions, etc.

TRANSMISSION

We have two types of transmission for these kneaders:

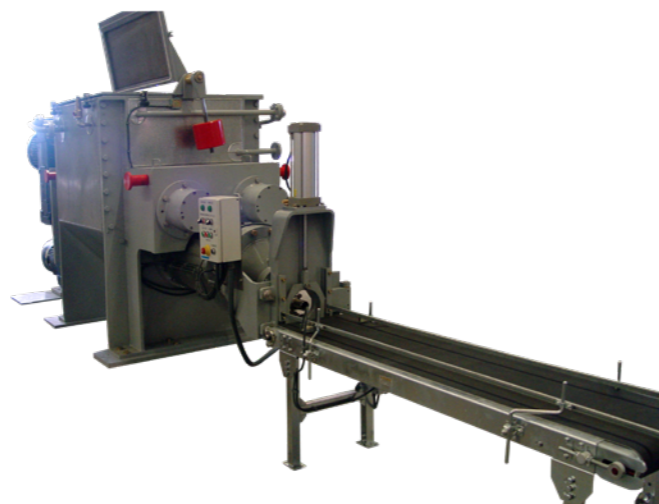
Mechanical transmission, by means of an electric geared motor driving a system of gear teeth-reducers connected to the arms, achieving a convergent movement at different speeds.

Depending on the power required, the drive unit is independent with mechanical coupling and frequency converter. For high power equipment, we have a drive system consisting of two geared motor units, directly coupled to the arms.

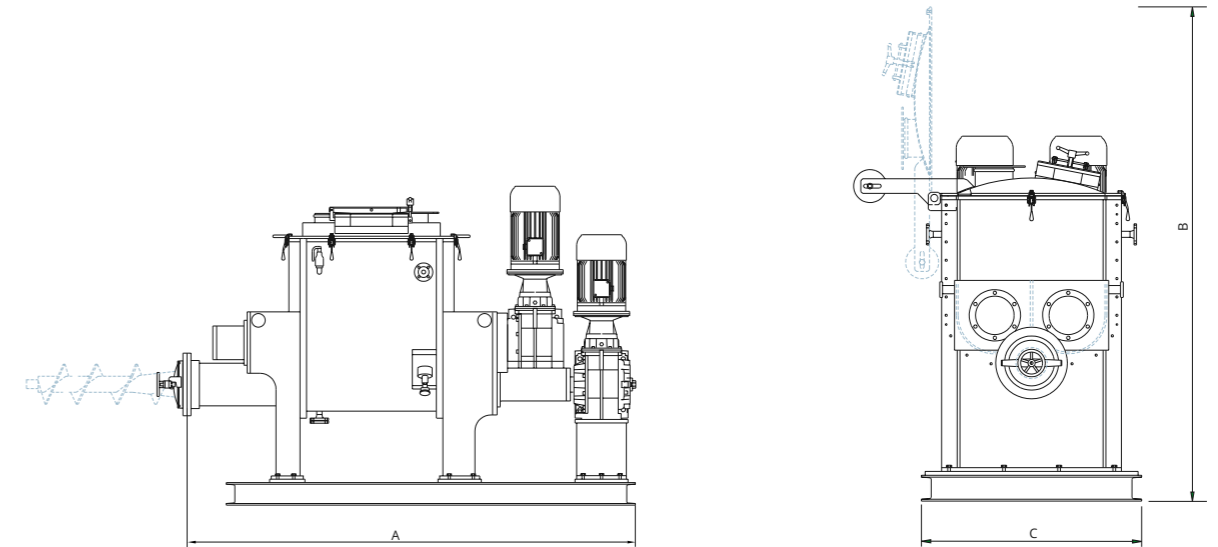
The power of the drive units is calculated according to the viscosity and volume of the product to be kneaded.

Hydraulic transmission is particularly suitable for applications requiring high intermittent stresses. This transmission provides advantages such as:

- » Continuous speed variation of blades and extruder, maintaining constant torque.
- » Safe response against abnormal increase in product viscosity.
- » Simplification in certification for working in explosive areas.



Technical Data



Model**	Volume		Blade power* (kW)	Extruder power* (kW)	Dimensions (mm)		
	Useful	Total			A	B	C
AME-7	3.5	7	1.5	1.1	1,260	1,300	800
AME-15	7.5	15	4	4	1,730	1,450	1,020
AME-60	34	70	3 / 2.2	4	2,407	1,317	940
AME-300	160	350	9 / 9	7.5	3,230	1,850	1,470
AME-500	260	550	15 / 15	11	2,846	2,360	1,570
AME-700	400	800	45 / 37	45	4,480	1,830	1,250
AME-1250	750	1,400	75 / 75	55	4,143	2,635	1,950
AME-2600	1,400	3,300	75 / 75	55	4,870	3,170	1,750
AME-4100	2,000	4,800	90 / 90	75	5,510	4,020	2,000
AME-6000	3,700	6,100	160 / 160	110	6,720	4,775	2,500

*The powers marked in this table are designed to work with products with a viscosity between 100,000-5,000,000 cP.

** On demand, it is possible to manufacture models with a larger product volume.